feel certain that the degree of heat necessary to kill the bacilli destroys other products of growth which may be very essential to the production of rapid immunity.

This point is, of course, not new. It has already received attention in tuberculosis, in the recommended use of tuberculin B. F. either alone or combined with tuberculin B. E.

As to the value of the opsonic index as a guide for the use of vaccines, the opinion has steadily gained ground that the index is so unreliable as not to justify the amount of time and trouble necessary for its determination.

THE PARAVERTEBRAL TRIANGLE OF DULNESS (GROCCO'S SIGN) IN PREGNANCY.

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IT has been satisfactorily demonstrated by Grocco,[1] Rauchfuss,[2] Thayer and Fabyan,[3] Ewart,[4] Frankenheimer,[5] and others that when there is a collection of fluid in one pleural sac dulness on the opposite side of the spine may be percussed. This dulness is roughly of triangular outline, and is so placed that the spinal column forms its vertical side. It has also been frequently demonstrated that in conditions other than simple collections of fluid in the pleural sac paravertebral dulness may be obtained. This is particularly the case in lobar pneumonia, when the consolidation lies along or near the spine, and in various newgrowths when the tissues of the mediastinum are involved. The paravertebral area of dulness in these cases rarely has the distinct triangular form that is so well marked in pleural effusion. Other characteristics, such as variations in size and shape of the paravertebral dulness, voice and breath sounds over and adjacent to the triangle, etc., may be wanting.

Recently several observers have reported cases in which it was possible to obtain a paravertebral dulness in conditions in which the affections were extrathoracic. Ewart[6] mentions that dulness may be percussed along the spine in ascites; Beall[7] gives details of a well-delimited paravertebral triangle on the left side in a case of subphrenic abscess, and a short time ago I called attention to

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[1] Rivista crit. di clinica med., 1902, Nos. 13 and 14.

[2] Deut. Archiv f. klin. Med., 1906, lxxxiv, 186.

[3] AMER. JOUR. MED. SCI., January, 1907.

[4] Lancet, 1907, ii, 49, 189.

[5] California State Jour. Med., 1907, v, 224.

[6] Lancet, 1907, ii, 189.

[7] Jour. Amer. Med. Assoc., 1907, xlix, 2148.

Grocco's sign in a patient whose affection proved to be an enormous multilocular cystadenoma in the abdominal cavity.[3]

The presence of paravertebral dulness in this case of cystadenoma suggested to me that similar areas of dulness might be obtainable in cases in which the abdominal tumor was not pathological, as in pregnancy. Through the courtesy of Dr. Frank C. Witter, of the University of Michigan Maternity, service of Professor Reuben Peterson, it has been possible to record observations upon seven cases with fairly well-marked abdominal tumor. A few details concerning each case may prove of value:

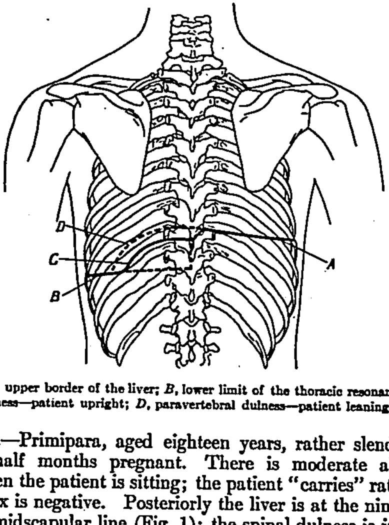

FIG. 1.—*A*, upper border of the liver; *B*, lower limit of the thoracic resonance; *C*, paravertebral dulness—patient upright; *D*, paravertebral dulness—patient leaning to the left.

CASE I.—Primipara, aged eighteen years, rather slender, eight and one-half months pregnant. There is moderate abdominal tumor when the patient is sitting; the patient "carries" rather high. The thorax is negative. Posteriorly the liver is at the ninth rib, in the right midscapular line (Fig. 1); the spinal dulness is just below the eighth dorsal spine; the lower limit of thoracic resonance on the left is in the midscapular line, at the tenth rib. To the left is a well-delimited area of dulness lying along the spine. Its base at the level of the tenth rib measures 7.5 cm. out from the midvertebral line; its vertical height is about 2.5 cm. The hypothenuse of the area is convex outward, and is rather more so toward the base. When the patient leans sharply to the left, the base is 9 cm. long and the spinal dulness 5 cm. There are no changes when the patient leans to the right. There are no auscultatory signs over the paravertebral area nor over the adjacent lung.

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[3] Jour. Amer. Med. Assoc., 1908, li.

CASE II.—Primipara, aged sixteen years, medium build, eight months pregnant. The abdomen is moderately large when sitting. The thorax is negative. Posteriorly the liver is at the ninth rib in the right midscapular line (Fig. 2); spinal dulness is at the ninth thoracic vertebra; on the left the lower limit of thoracic resonance is at the ninth space in the midscapular line. A rather flat-topped area of dulness may be percussed to the left of the spine. Its base at the level of the ninth space measures 7 cm. from the midvertebral line; its elevation on the spine measures 2.5 cm. There are no demonstrable changes in shape or size of the paravertebral dulness when the patient changes position. Auscultation is negative.

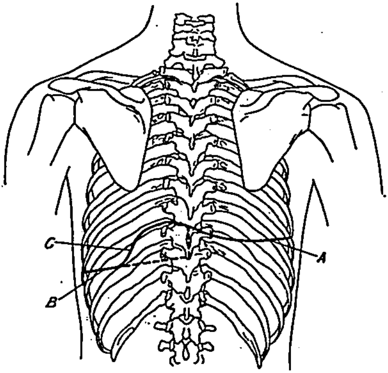

FIG. 2.—*A*, upper border of the liver; *B*, lower limit of the thoracic resonance; *C*, paravertebral dulness—patient in any position.

CASE III.—Primipara, aged twenty-one years, of slender build. She is overdue about fifteen days. When sitting erect she has a moderately prominent abdomen, the greatest prominence being low down. Occasionally she has weak pains. The thorax is negative. Posteriorly the liver is at the ninth space in the right midscapular line (Fig. 3); the spinal dulness begins at the tenth thoracic spine; the lower limit of thoracic resonance on the left follows the tenth rib. *There is no area of dulness along the spine on either side, whatever position the patient may assume.*

CASE IV.—Primipara, aged nineteen years, of very slender build, about one and one-half weeks from term. The abdominal distention is rather high when the patient is sitting. The thoracic examination is negative. Posteriorly the liver dulness is at the tenth rib in the right midscapular line (Fig. 4); the spine is dull at

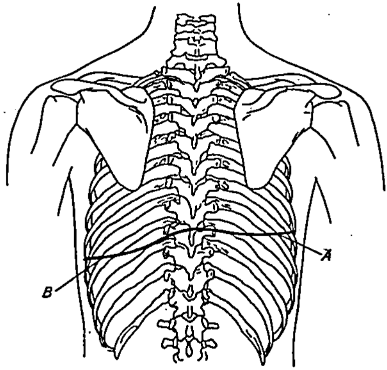

FIG. 3.—*A*, upper border of the liver; *B*, lower limit of the thoracic resonance.

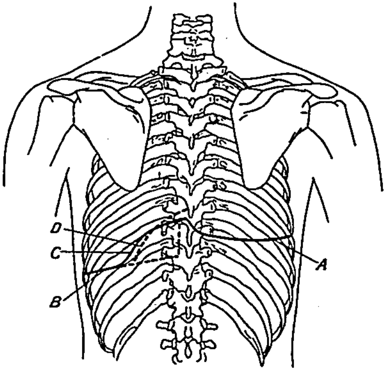

FIG. 4.—*A*, upper border of the liver; *B*, lower limit of the thoracic resonance; *C*, paravertebral dulness—patient upright; *D*, paravertebral dulness—patient leaning to the left.

the ninth thoracic spine; the lower border of thoracic resonance on the left is at the tenth rib in the midscapular line. A sharply defined area of dulness, roughly of triangular outline, may be made out to the left of the spine. Its base extends 8.5 cm. from the midvertebral line; its elevation at the spine is 2.5 cm. When the patient lies on the right side the area shows no marked change; when she lies on the left, the base measures 7.5 cm., and the elevation at the spine is 4.5 cm. There are no auscultatory signs over the triangle or the adjacent lung.

CASE V.—Primipara, aged nineteen years, of slender build, eight months pregnant. There is moderate abdominal distention when the patient is sitting. The thorax is negative. Posteriorly the liver is at the ninth space in the right midscapular line (Fig. 5); the spinal dulness begins at the ninth thoracic vertebra; the lower limit of thoracic resonance on the left is at the tenth rib in the midscapular line. An area of paravertebral dulness can be made out to the left. Its base at the level of the tenth rib extends out from the midvertebral line for about 4.5 cm.; its elevation on the spine is 2.25 cm. The area is triangular, and its hypothenuse is moderately convex outward. When the patient leans sharply to the right the base of the triangle measures 4 cm., and its elevation 3.5 cm. When the patient leans to the left a like distance, the base measures 6 cm., and the elevation on the spine is 4.5 cm. There are no auscultatory signs.

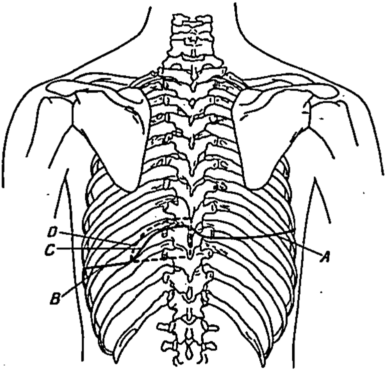

FIG. 5.—*A*, upper border of the liver; *B*, lower limit of the thoracic resonance; *C*, paravertebral dulness—patient upright; *D*, paravertebral dulness—patient leaning to the right.

CASE VI.—Primipara, aged twenty years, of medium build, about six months pregnant. There is a fair-sized abdominal tumor for the months pregnant. The thorax is negative. Posteriorly the liver is at the ninth space in the right midscapular line (Fig. 6); the spinal dulness is at the tenth dorsal spine; the lower limit of thoracic resonance follows the tenth rib. *There is no paravertebral dulness on either side of the spine, whatever position the patient assumes.*

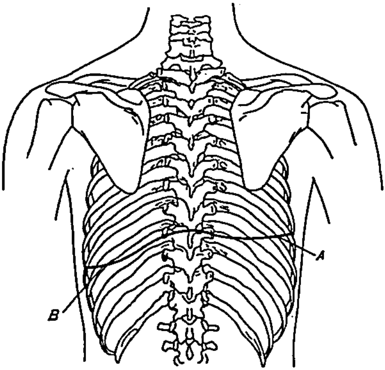

FIG. 6.—*A*, upper border of the liver; *B*, lower limit of the thoracic resonance.

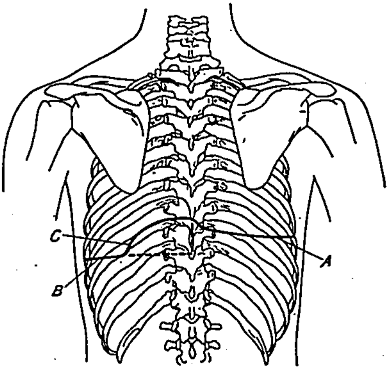

FIG. 7.—*A*, upper border of the liver; *B*, lower limit of the thoracic resonance; *C*, paravertebral dulness.

CASE VII.—Primipara, aged twenty-two years, strongly built, eight months pregnant. There is a moderate abdominal tumor when sitting. The thoracic examination is negative. Posteriorly the liver is at the ninth rib in the right midscapular line (Fig. 7); the spinal dulness begins just below the ninth thoracic spine; the lower limit of thoracic resonance on the left follows the tenth rib. To the left of the spine is a flat-topped area of dulness lying along the spine. Its base measures 6.5 cm.; its elevation on the spine is 2 cm. There is no change when the patient leans sharply to the right; when she leans to the left the area appears rather larger, but not so noticeably so as to make accurate percussion possible through the rather thick parietes.

While the evidence herewith presented is rather scant, yet certain interesting and instructive points are well brought out. The patients were all primiparæ, with ages ranging from sixteen to twenty-two years. Five were pregnant between the eighth and the tenth month, one was about fifteen days overdue, and one was pregnant at the sixth month. In only two of the cases did percussion fail to demonstrate a well-marked area of dulness along the spine. The dull areas were roughly triangular, with more or less convex hypothenuses; and they *were all to the left of the midvertebral line.* In all cases examination of the thorax was negative. The paravertebral areas of dulness were not so distinctly triangular in outline as those that are percussed in cases of simple effusion into the pleural sacs. The hypothenuses appeared to be more markedly convex than in cases of effusion, and there was a tendency for the paravertebral dulness to be flat-topped. In two of the cases the hypothenuses were at a rather higher level than the point at which the line met the spine. Moderately strong percussion strokes were used to delimit the dull areas. The triangles were generally larger when the patients lay or leaned to the left, and rather smaller, although sometimes higher, when the patients leaned to the right. There were no definite auscultatory signs over the areas of dulness or over the lung adjacent thereto.

There were two cases in which the paravertebral dulness could not be percussed on either side of the spine, in whatever position the patient was placed (Cases III and VI). In Case III the patient was about two weeks past term, and was having weak pains at the time of the examination. The uterus had descended, but the membranes were intact. In Case VI the patient was at the sixth month, and the abdomen was moderately distended, but rather low down, compared with the other cases examined. It will be interesting to note whether or not this patient develops a paravertebral dulness to the left later in her pregnancy.

The paravertebral dulness in pregnancy appears to be due primarily to the abdominal tumor. This doubtless displaces other viscera upward. The greater "give" on the part of the diaphragm is to the left, where no solid organ, such as the liver, is found to support the abdominothoracic partition. The mediastinal tissues may be displaced by this more than normally arched diaphragm, and the lung may be temporarily moved away from the spine. It does not seem entirely possible for pressure of the mediastinal tissues or of the abdominal viscera upon the vertebræ and transverse processes to produce the well-marked paravertebral dull areas noted in the cases furnishing the basis for this report. Yet one cannot altogether feel certain that the dulness percussed along the spine is brought about by a large, hernia-like protrusion upward of the abdominal viscera. The viscera most likely to be displaced are the liver, stomach, and intestine. While some of the dulnesses percussed give outlines which might lead one to suspect that the liver is the origin, yet, were this so, it is not easy to see how it would be possible for one to get such readily obtained differences in shape and size of the areas on change of the patient's position. The combination of the two factors—of displacement of mediastinal tissues and encroachment of abdominal viscera upon the thoracic cavity, as result of the demands of the gravid uterus for room—appears reasonable. It is significant that in Case III, in which the uterus had descended just before the onset of labor, no paravertebral area of dulness was obtained. Likewise, in Case VI, in which the patient was pregnant at the sixth month, and the abdominal tumor was not yet very marked, the spine was resonant as low as the limit of thoracic resonance on the left.

But a short time ago the statement was made by a well-known observer[9] that in simple, pleural effusion Grocco's paravertebral triangle of dulness gave promise of being pathognomonic. The complication of right-sided effusion, with pregnancy at the eighth month, would be interesting, in so far as the signs on percussion were concerned. The fact seems all the more firmly established that only rarely do we find signs or symptoms of disease that are pathognomonic. All must be taken as contributing relative material to the complete clinical picture.

THE EFFECT OF OVERCIVILIZATION ON MATERNITY.

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This paper has been suggested by a series of cases seen in private practice and in consultation which present features so largely at variance with text-book obstetrics and with cases seen in hospital

[9] Progressive Medicine, 1907, iii, 40.